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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,882	09/30/2003	Daniel G. Borkowski	INTCP002	6776

45460 7590 04/05/2006

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EXAMINER

FAROOQ, MOHAMMAD O

ART UNIT	PAPER NUMBER
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2181

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/675,882	Applicant(s) BORKOWSKI ET AL.	
	Examiner Mohammad O. Farooq	Art Unit 2181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Fritz Fleming
FRITZ FLEMING
Supervisory PRIMARY EXAMINER
GROUP 2100
4/1/2006
AM 2181

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-19 and 21-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. U.S. Pat. No. 5,953,020 in view of Savov et al. US 2003/0177164.

2. As to claim 1, Wang et al. teach, the method comprising:

receiving a request to write data to a FIFO (write request signal; col. 7, lines 46-52);

determining whether the FIFO is full by comparing the value with a predefined maximum value (col. 8, lines 21-30); and

if the value is less than the predefined maximum value:

incrementing the counting (col. 8, lines 12-20);

writing data to the FIFO (col. 8, lines 21-30).

Wang et al. do not teach counting semaphore. Savov et al. teach counting semaphore (paragraph 0014). However, it would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Wang et al. and Savov et al. because that would provide data be “thread-safe,” or protected from simultaneous modification by different threads (paragraph 0013).

3. As to claims 2 and 3, Wang et al. teach method, further comprising:
receiving a request to read data from the FIFO (col. 7, lines 46-52);
reading the data from the FIFO (col. 8, lines 21-30); and
decrementing the counting (col. 8, lines 12-20).

Wang et al. do not teach counting semaphore. Savov et al. teach counting semaphore (paragraph 0014). However, it would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Wang et al. and Savov et al. because that would provide data be “thread-safe,” or protected from simultaneous modification by different threads (paragraph 0013).

4. As to claims 4 and 5, Wang et al. teach method, further comprising:
receiving a request to read data from the FIFO (col. 7, lines 46-52);
determining whether the FIFO is empty by comparing the value with a predefined minimum value (col. 8, lines 21-30); and
if the value is greater than the predefined minimum value:
reading data from the FIFO (col. 8, lines 21-30); and

decrementing the counting (col. 8, lines 12-20).

Wang et al. do not teach counting semaphore; and incrementing and decrementing are atomic. Savov et al. teach counting semaphore (paragraph 0014) ; and incrementing and decrementing are atomic (abstract). However, it would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Wang et al. and Savov et al. because that would provide data be “thread-safe,” or protected from simultaneous modification by different threads (paragraph 0013).

5. As to claim 6, Wang et al. teach method, further comprising:

if the value is not less than the predefined maximum value:

discarding the data that was to be written to the FIFO (no data is written; col. 8, lines 21-30).

Wang et al. do not teach counting semaphore. Savov et al. teach counting semaphore (paragraph 0014). However, it would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Wang et al. and Savov et al. because that would provide data be “thread-safe,” or protected from simultaneous modification by different threads (paragraph 0013).

6. As to claim 7, Wang et al. teach method, further comprising:

if the value is not less than the predefined maximum value:

blocking further execution of a process that made the request to write data to the FIFO until the value is less than the predefined maximum value (col. 8, lines 3-52).

Wang et al. do not teach counting semaphore. Savov et al. teach counting semaphore (paragraph 0014). However, it would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Wang et al. and Savov et al. because that would provide data be “thread-safe,” or protected from simultaneous modification by different threads (paragraph 0013).

7. As to claims 8-10, Wang et al. teach method, in which comprises a counter, at least one comparator for comparing an output of the counter with a predefined value and generating one or more signals based on the comparison (col. 8, lines 3-52).

Wang et al. do not teach counting semaphore is implemented using special-purpose hardware. Savov et al. teach counting semaphore is implemented using special-purpose hardware (paragraph 0014 and 0064). However, it would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Wang et al. and Savov et al. because that would provide data be “thread-safe,” or protected from simultaneous modification by different threads (paragraph 0013).

8. As to claim 11, Wang et al. teach computer program product, comprising:

- receiving a request to write data to a FIFO (write request signal; col. 7, lines 46-52);
- determining whether the FIFO is full by comparing the value with a predefined maximum value (col. 8, lines 21-30); and
- if the value is less than the predefined maximum value:
 - incrementing the counting (col. 8, lines 12-20);

writing data to the FIFO (col. 8, lines 21-30).

Wang et al. do not teach counting semaphore. Savov et al. teach counting semaphore (paragraph 0014). However, it would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Wang et al. and Savov et al. because that would provide data be “thread-safe,” or protected from simultaneous modification by different threads (paragraph 0013).

9. As to claim 13, Wang et al. teach engine comprising:

one or more coprocessors (since graphics chip; col. 4, lines 58-67);

a memory (item 16, fig. 3);

signal generation logic for signaling the status of a FIFO (col. 8, lines 3-52); and

computer code stored in said memory, which, when executed by one or more of said coprocessors, is operable to implement a FIFO using said signal generation logic (col. 8, lines 3-52).

Wang et al. do not teach a counting semaphore. Savov et al. teach a counting semaphore (paragraph 0014). However, it would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Wang et al. and Savov et al. because that would provide data be “thread-safe,” or protected from simultaneous modification by different threads (paragraph 0013).

10. As to claim 23, Wang et al. teach, the method comprising:

maintaining a counting (col. 8, lines 12-30);

incrementing the value of the count in response to a first action by a first process (col. 8, lines 3-52); and

taking at least one action in a second process based on the incremented value of the count (col. 8, lines 3-52).

Wang et al. do not teach a counting semaphore. Savov et al. teach a counting semaphore (paragraph 0014). However, it would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Wang et al. and Savov et al. because that would provide data be “thread-safe,” or protected from simultaneous modification by different threads (paragraph 0013).

11. Claim 12 is computer program product of method claim 2. Wang et al. and Savov et al. in combination teach method as set forth in claim 2. Therefore, Wang et al. and Savov et al. also teach computer program product as set forth in claim 12.

12. Claims 14-19, 21 and 22 are similar in limitations as method claims 1, 4, 6, 7, 9 and 10. Wang et al. and Savov et al. in combination teach method as set forth in claims 1, 4, 6, 7, 9 and 10. Therefore, Wang et al. and Savov et al. in combination also teach apparatus as set forth in claims 14-19, 21 and 22.

13. Claims 24-30 are similar in limitations as claims 5, 4, 6, 1 and 8-10. Wang et al. and Savov et al. in combination teach method as set forth in claims 5, 4, 6, 1 and 8-10. Therefore, Wang et al. and Savov et al. in combination also teach method as set forth in claims 24-30.

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14. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. U.S. Pat. No. 5,953,020 in view of Savov et al. US 2003/0177164 further in view of Kohli et al. U.S. Pat. No. 6,522,682.

15. As to claim 20, Wang et al. teach, comprising:

An adder/subtractor (in functionality; col. 7, lines 46-52; col. 8, lines 21-30); and

One or more comparators operatively connected to an output of the adder/subtractor (in functionality; col. 8, lines 21-30; col. 8, lines 12-20).

However, Wang et al. do not teach counting semaphore; and incrementing and decrementing of the counting semaphore. Savov et al. teach counting semaphore (paragraph 0014) ; and incrementing and decrementing of the counting semaphore (abstract). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Wang et al. and Savov et al. because that would provide data be “thread-safe,” or protected from simultaneous modification by different threads (paragraph 0013).

Neither Wang et al. nor Savov et al. teach logic implemented as a part of the same circuit. Kohli et al. teach logic implemented as a part of the same circuit (implemented in hardware; col. 13, lines 54-65). It would have been obvious to one of ordinary skill in the art at the time of invention to modify the combination of Wang et al. and Savov et al. with Kohli et al. because that would maximize the speed of correlation and minimize the error (col. 13, lines 54-65).

Response to Arguments

16. Applicant's arguments filed November 9, 2005 have been fully considered but they are not persuasive.

17. The examiner disagrees with the applicants the cited references could not be combined. Wang et al. do not use the word "semaphore", however, provides the functionality of the "semaphore" as flag and Savov et al. was relied upon to teach the term "semaphore" which shows incrementing and decrementing as Wang et al. Therefore, the functionality of semaphore provided by both of the references is same and it would be obvious to one of ordinary skill in the art at the time of invention to combine the references. Furthermore, in Wang et al. item 148, fig. 7 is equivalent to a semaphore counter and output of item 90, fig. 7 provides the equivalent of semaphore flags in the form of the shut off signals. After considering the factors above, the examiner retains the rejection of the previously rejected claims.

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18. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad O. Farooq whose telephone number is (571) 272-4144. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fritz M. Fleming can be reached on (571) 272-4145. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mohammad O. Farooq
March 28, 2006

Fritz M. Fleming
Supervisory
FRITZ FLEMING
PRIMARY EXAMINER
GROUP 2100
4/1/2006
Art 2181